

"Dedicated to Public Service"

THE RADIATOR



W6RHC
IRL #8170
Echolink #322788



<http://www.gearsw6rhc.org>

P.O.Box 508 Chico, CA 95927-0508

Founded: August 13, 1939

July, 2016

Coming Events

O.A.R.S. GENERAL MEETING

Second Friday, of month, 7:00 p.m., at St. Paul's Church Parrish Hall, 1430 Pine St., Oroville

G.A.R.S. Second Thursday of month, 4:30 p.m. Lutheran Church Hall, Artois; 4:30 p.m.

G.E.A.R.S General Meeting, third Friday of month, Butte County Search and Rescue Bldg., Chico. Social hour 6:30, meeting at 7:00.

Board Meetings: 2nd Saturday of month

Butte A.R.E.S. MEET: fourth Friday, at Butte County Search and Rescue Building.

FCC EXAMS - GEARS VEC

First Sunday of every even numbered month. At the Butte County Search and Rescue Building. Written test at 2:00 p.m. For information or pre-registration call Tom Rider -W6JS; 530-893-9211

Club Events: News and items of interest
GEARS Calendar...all inside.

Website: www.gearsw6rhc.org
www.gearsw6rhc.org



Picture courtesy EVARC

The Prez' Says:

QST de KA6GND



Field Day has come and gone for another year, the years keep on rolln' by. We could surely have had better band conditions, which is beyond every hams control, but we sure had a great time with many club members and visitors at the site in Forest Ranch. Thank you Michael Favor, N6FAV for doing a great job of chairing this year's event. We were able to get a lot of publicity out ahead of time on the radio, TV, newspapers and Facebook about Field Day, GEARS and ham radio to the public which is one of the many purposes of Field Day. And if you missed it, you also missed seeing an incredible array of vintage and rare code keys put on display by Tom Rider W6JS and some from Clark Hansen, AE5WD. I hope that I did not drool on any of them, hi hi. Thank you to the many who made our Field Day a success this year,

At our upcoming meeting on Friday July 15th our program will be Chris Huber, N6ICW from Sacramento. Chris has a wonderful repeater system with the 147.195 repeater on Mt. Vaca, the 145.150 repeater at Lake Tahoe, and the 146.940 repeater here locally (temporarily not linked). This system also has several remote receivers and IRLP to enhance it's capabilities, making it a very efficient and useful systems in a variety of ways. Come hear Chris' presentation and feel free to pick his brain, a wonderful guy! For more information you can check out www.n6icw.org.

I have now served as our club president for 6 months, ½ the elected term. We have accomplished a club survey which we remain mindful of the feedback, a variety of guest speakers and a variety of segments added to our club meetings. I am always open to your comments and suggestions, feel free to contact me – I am here to serve the club.

HELP NEEDED: I could use a hand with some soldering here at my QTH here in Forest Ranch sometime this week if possible. I have 4 PL259's to be done and some jumpers in my automatic antenna tuner to be soldered. I would be eternally grateful – thanks.

Larry Marcum, KA6GND
GEARS President
530-345-5399
ka6gnd@gmail.com

P.S. For the non-code readers, "de" means "from" and "hi hi" is the same as "ha ha".



Board of Directors Meeting: June 11 2016

ATTENDANCE Anna Horn not present.

MEMBERSHIP APPLICATIONS: One tentative.

OLD BUSINESS:

Minutes of May 14 board meeting approved.

Treasurers report:

\$3520.65. Report approved.

Committees:

Raffle: Good for now.

Field Day: Discussed what will be going on during field on the 24th to 26th. Band captains will be Tom 40m, Clark 20m, Gene 15m, Michael 10m.

Net Manager: Changing the net time on Tuesday to 19:30.

VEC: One person passed.

Classes: A general class will start July 11 and be done by Aug 8.

Programs: June program will be on fan dipole and Field Day.

Steak Bake: Discussed the price to charge this year and where we will be ordering the steak.

A discussion regarding 147.105 repeater.

ADJOURNMENT: 10:53 am

Dale Anderson,
Secretary

**MINUTES OF GENERAL MEETING for June 17 2016****Introductions:**

PROGRAM: Fan dipole by Chris KK6BZD and Field Day by Michael N6FAV.

ATTENDANCE: All present.

ANNOUNCEMENT:

Next board meeting is on July 9 at 9am at BloodSource.

Club net every Tuesday 19:30 starting in June.

June 24,26 is field day.

No club breakfast this month.

Klaus KD6GTE will show his 2m antenna next month and Steve W6AKF will talk about Working All States.

GEARS is now a ARRL affiliate.

Open mike: Rick KI6VOS showed his new radio IC7100. Dale KK6EVX did a show and tell of the Memorial Day ARES Lassen trip with Scott KE6VUS.

Anna has made a contact with a gentleman in France on 80m with 100watts.

VEC: none. A general class will start July 11 and be done by Aug 8.

MINUTES: Approved minutes for May.

TREASURER: The ORS club donated \$40 worth of ticket to the club. The Auction brought in \$733, \$3520.85. Approved for May.

Field Day: Band captains will be Tom 40m, Clark 20m, Gene 15m, Michael 10m.

Steak Bake: Will be on Saturday Sep 17 at Bidwell park.

ADJOURNMENT: 20:48 hr.

Dale Anderson,
Secretary



Chris McCain—KK6BCD— Yuba City Displayed his “Mighty Woof” 2m/440 Dual Band Fan Dipole, which he built shortly after obtaining his Ham license.

Chris freely shared his points of success while constructing, and with much humor he related his mishaps, frustrations, and lastly his huge sign of relief as all the components finally assembled correctly.

Thank you Chris-KK6BCD— for an interesting and instructive program.

Further information and Plans for constructing a “Mighty Woof” Fan Dipole are online at <http://www.hamradioschool.com/wbotges-mighty-woof-2m440-mhz-dual-band-fan-dipole/>



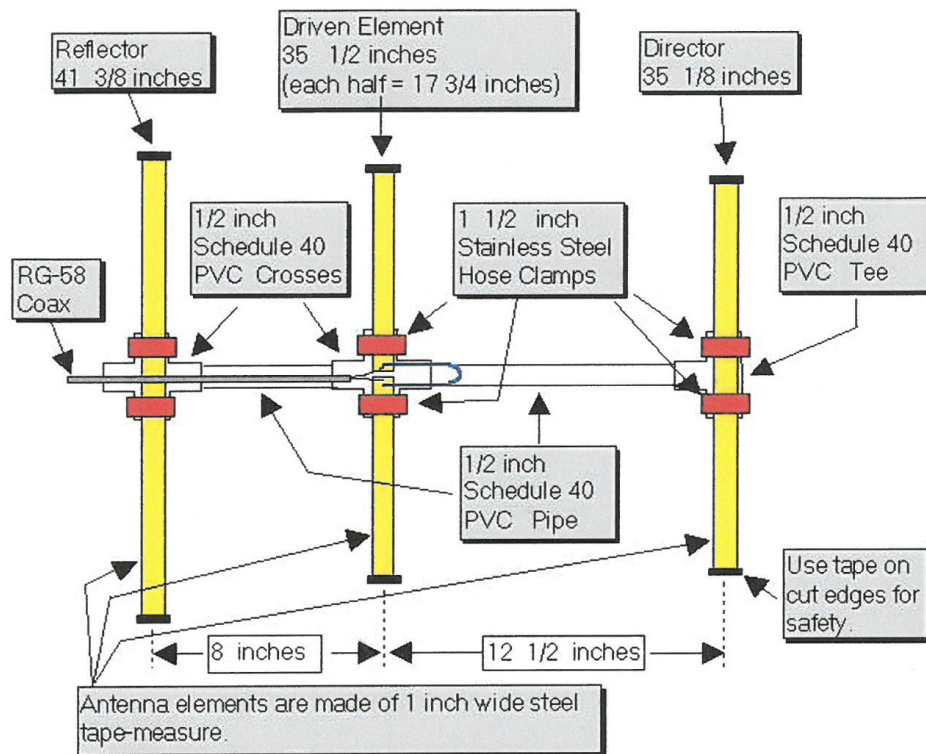
Left: Michael Favor –N6FAV speaking of Field Day (the following weekend). Michael gave exceptional detail as to set up, team captains, logging software and miscellaneous issues.

Top right photo: Steven Russell Wright, KM6DBS—GEARS newest member—and Raymond Foulks –KG6MRK studying Chris McCain’s “Mighty Woof” Fan Dipole.

Steve & Marge Wolske volunteered at Durham Elementary School Site during May Chico Velo (Wildflower) Event.



Rubber faucet washers have been used by some builders between the tape measure element and the PVC fittings on the director and reflector. These allow for the tape to fit the contour of the PVC fitting and will make the antenna look better. Now you know what to do with those washers left over from the assortment you once purchased; You know ones I mean, the washers that do not fit the faucets you have in your house. If you are an apartment dweller, ask around, these things are stashed in almost every homeowners basement or garage.



Construction:

Cut a length of tape measure to $41 \frac{3}{8}$ inches. It will be the Reflector element. Cut two lengths of tape measure to $17 \frac{3}{4}$ inches. These will be used for the Driven element. Cut one length of tape measure to $35 \frac{1}{8}$ inches. It will be used for the Director. Once you have cut the tape measure to length, put vinyl tape on the cut ends to protect yourself from the sharp edges. You will want to scrape or sand off the paint from one end of each of the driven element halves so you can make a good electrical connection to the feedline.

If you are planning to solder the feedline to the driven elements it is best to tin the elements first before attaching them to the PVC cross. If you don't, the PVC will melt as you apply heat to the element. It would be a good idea to also take the time to form the wire used for the hairpin match into a "U" shape with the two legs of the "U" about $\frac{3}{4}$ inch apart. Tin the ends of the hairpin if you plan on soldering it to the driven element. If you tin $\frac{1}{4}$ inch of each end of the hairpin it will leave $4 \frac{1}{2}$ inches to shape into the "U".

You will need to cut two lengths of PVC pipe to use as the boom. One should be cut to $11 \frac{1}{2}$ inches. It is used to form the boom between the Director and the driven element. The other piece of PVC should be cut to 7 inches. It will be used between the Reflector and the Driven element. Just about any saw will cut through the soft PVC pipe. I used a



Continued from page 4:

Hacksaw. When we mass produced this antenna as a club project, we marked the pipe and used a portable jig saw to Cut the lengths in assembly line fashion. It took longer to measure the pipe than to actually make the cuts. Since the Pipe is available in ten foot lengths, you can make a few beams from a single 10 foot length. In any case, you might Want to cut a few extras lengths for your friends. They will want to duplicate this once they see your completed antenna.

At this time you can pre-assemble the PVC boom, crosses and tee which will support the tape measure elements. I did Not use any cement or glue when I assembled mine. The PVC pipe is secured in the fittings with a friction fit.

The hose clamps I used are stainless steel and have a worm-drive screw which is used to tighten them. They are about 1/2 inch wide and are adjustable from 11/16 to 1 1/2 inch diameter. Attach the tape measure elements to the PVC fittings As shown in the accompanying drawing. It is normal for the Reflector and Director elements to buckle a bit as it Is Tightened to the PVC Tee and Cross. You can eliminate this buckle if you use the washers and self tapping screws to Attach these elements instead of the hose clamps. I not think the beam will withstand as rough as treatment as when Hose clamps are used.

Final Chapter to be published in August.

DO YOU HAVE OLD QST MAGAZINES IN SEARCH OF A NEW HOME?

Gene Wright has that future home for that QST, through his project to place QST Magazines in professional offices of throughout Chico.

Labels placed on the QST's will advertise the Golden Empire Amateur Radio Society and Encourage the readers to consider Ham Radio as an interesting hobby of not only fun, but With potential for community service of many Facets.

Bring the QST's to the Club meetings or contact:

Gene –WA6ZRT–530- 345-3515.



Caps embroidered with your name and your call sign may be ordered by contacting WA6ZRT -Gene Telephone #530 -345-3515

VEC TESTING
2:00 p.m.
June 5, 2016
August 7, 2016

**AT BUTTE COUNTY
SEARCH & RESCUE
BUILDING**

**All Classes
Technician, General and
Extra.**

Contact:
Tom Rider-W6JS
530-893-9211



Rustyboy rider@aol.com

Field day was so nice this year. Except for the mosquitoes. All operator stations were very impressive. We had a lot of experienced hams new hams and visitors. The weather was perfect and the communications were awesome except that I did not do so well on digital this year. Probably due to me not knowing how to operate my new radio. Read the darn instructions ! ke6vus Scott in Paradise



Tube of the Month

HV-1 (A tube that sucks)

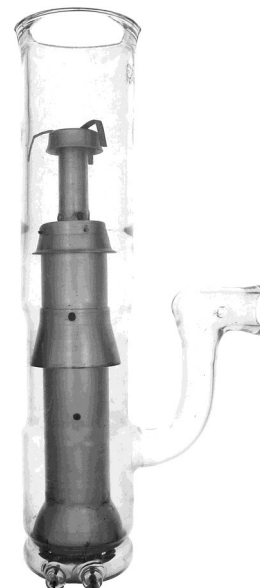
There are vacuum tubes and other devices that require additional vacuum pumping or must be completely pumped down in operation. A transmission electron microscope is like a cathode ray tube where the tube is opened up and the sample to be scanned is placed in the electron beam. The tube is then pumped down before any voltages are applied. A rotary vacuum pump and a series of valves are used to get a vacuum. The microscope I used in college had a bad habit of losing control of the pump and sucking oil into the valve system. It would take me 3 hours to clean it out. Very large tubes like the high power klystrons have diffusion pumps built into the tube to maintain an adequate vacuum.

In 1942, Eimac developed the HV-1, a diffusion pump that was produced for over 20 years. The HV-1 has a heater element in the base that heats a special oil that is vaporized and rises into the tapered aluminum structure in the middle. It works like that stinky Vicks Vaporizer your mother made you smell as a kid.

The top of the tube has a manifold that is attached to the item to be evacuated. This area is cooled by a fan. The oil vapor rises in the column and molecules of gas diffuse into the oil before it condenses on the glass and runs into the base. There are three stages of this process with higher concentrations of molecules near the base. The neck in the side is attached to a mechanical forepump that has the ability to remove the gas. The oil is re-heated and vaporized again. The process can achieve a vacuum of 4×10^{-7} mm of mercury.

The HV-1 I have was made in 1942 and may have been the first unit ever made. It was once donated by Eimac to a museum and had a date tag.

Visit the museum at N6JV.com
Norm N6JV



FCC wants your help understanding radio noise and wireless interference

By Komando Staff, Komando.com



[Photo courtesy of Shutterstock](#)

As our use of wireless devices increase, concerns about how radio frequencies are currently allocated naturally will arise. Smartphones, bluetooth speakers, Wi-Fi routers, smart appliances are all typically competing for the same radio space, leading to the inevitable increase in spectrum congestion and noise.

In a [document](#) released last week, The US Federal Communications Commission (FCC) asked for public input precisely on this topic. The changes to the radio spectrum noise floor is due to the increasing number of devices that emit radio energy. The FCC admits that, currently, they have limited data to support their evidence of the increasing noise floors so they will need the public's help.

They briefly outline the types of devices that generate radio noise.

There are the unintentional radiators. These devices generate radio energy for internal use but are not designed to emit them. Portable electronic devices and computers fall in this category and FCC regulations are in place to limit the radio energy of these devices.

Next are the licensed and unlicensed radiators. Bluetooth devices, wireless routers, TV and radio stations and microwave ovens are examples of these devices and their radio emission is also regulated.

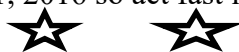
The third type, which appears to be the area of concern in the study, are incidental radiators. These devices are not designed to generate or emit radio energy but they still emit RF by virtue of their operation. Power lines, electric motors, power supplies and transformers are main examples of this type. The FCC states that there is little regulation against the RF noise generated by these devices.

The FCC document then lists a number of questions concerning sources and locations of noise problems, evidence of increases to the noise floor in the past 20 years and how a radio noise study could be conducted. It's particularly telling that they specifically ask what efforts could be taken to improve the noise generated by incidental radiators if they are indeed a concern. Increased regulation of these devices may be in the pipeline depending on the quantitative evidence collected in the study.

If you want to help the FCC in this study, you could submit a comment via an electronic flier in their Electronic Comment Filing System (ECFS) located [here](#). Search for Proceeding No. 16-191 to file your comment and upload related documents.

If you prefer a paper filer instead, instructions for mailing the filer to the FCC Headquarters are provided in the document as well.

The comment filing deadline is August 11, 2016 so act fast if you want to contribute to the study.



The GEARS Newsletter Staff:**Editor and Publisher.....**Dorothy Post**Printing & Distribution snail mail:** Evelyn Weir**Website...Stephen McDermott W6AKF**

The Radiator is a monthly publication of the Golden Empire Amateur Radio Society (GEARS). It is the policy of the Editor to publish all material submitted by the membership provided such material is in good taste, relevant to amateur radio, of interest to GEARS members, and space is available. Please send all submissions to the Editor – Dorothy Post by the last day of the month through the following medium:
E-mail: dj@posthouse.us

Club Officers: (Board of Directors)

PresidentLarry Marcum-ka6gnd

Vice President..... Stephen Wolske-kf6hss

Secretary Dale Anderson-kk6evx

Treasurer.....Rick Hubbard-ki6vos

Past PresidentAnna Horn Kg6goa

Director..... Tom Rider-W6JS

Director.....Gene Wright-wa6zrt

Director.....Raymond Foulks-kg6mrk

Club Meetings**General Meeting Third Friday 7:00 PM****Board Meeting Second Saturday****GEARS Club Net as of 6/7/16****Tuesdays 7:30 PM 146.850 MHz-PL 110.9****GARS Club Net:Monday,7:00 pm 147.105+Mhz
PL 110.09****Thursdays Simplex Net 7:30 p.m. 146.52****Sacramento Valley Traffic Net****Nightly 9:00 PM 146.850 MHz-PL 110.9****ARES Nets:****Butte Mondays 20:00 146.850 MHz-PL 110.9****Yuba Sutter Thursdays 19:00 146.085+MHz PL 127.3****Glenn Thursday 19:30 147.105 MHz +PL 100.0****Other Nets:****Sac Valley Section Net—7:00 PM 2nd Wed of the month
146.085 MHz+PL 127.3****440 Wed. Night 8:00 PM Wednesday 440.650 MHz****Golden Bear 7:00 PM Daily 3975 kHz****Willie Net 8:00 PM Mondays 1930 kHz****Western Public Service System (WPSS)
7:30 PM 3952 kHz****ARISS (International Space Station) Uplink 144.490
MHz Downlink 145.800 MHz****Hope-1 satellite: all uplinks are in 145Mhz band:****All downlinks are in 435Mhz band****...California Traffic Net: 3906 KHz nightly @6:00 pm****For traffic listing & @6:30 p.m. for roll call.**

Planning on—or thinking about a drone to integrate with your Ham Radioexperience? Investigate the [Astro Drone App](#)

Developed by the European Space Agency, this app lets pilots fly a real-world Parrot AR.Drone through a virtual extra terrestrial environment. The Free iOS game combines the drone's live video feed with augmented reality. (Annabel Edwards, Popular Science Magazine July/August 2016)

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### A BRIGHT FUTURE FOR WIRELESS COMMUNICATION

LI-FI: Light Fidelity, or Li-Fi promises to stream data to wireless devices in the form of LED flashes. Intensity changes fast enough to transmit data at superspeeds—1 million cycles per second or 1 megahertz.

The leading mobile communications researcher (University of Edinburgh) likens visible light waves to a wide-open freeway as compared to radio waves operating on a crowded one lane road. The possibilities for world wide impact on communications , internet and radio are endless. Still in development, the developers anticipate Li-Fi will be a viable product within five years or less.

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Lions Club Recycles Eyeglasses for Sight

In just about any home, one can find a pair of eyeglasses that are no longer being used. That same pair of eyeglasses can change another person's life. Throughout the year, Lions members, & volunteers collect used eyeglasses and deliver them to regional Lions Eyeglass Recycling Centers where volunteers clean, sort by prescription strength and package the glasses. Recycled glasses are distributed to people in need in low and middle income communities in the United States and to impoverished peoples throughout the world.

Drop off your usable eyewear at Lions-sponsored collection boxes whose locations include libraries, schools, community centers, places of worship, optometrist offices and many other public locations – just look for their donation boxes... or contact your [local Lions club](#),

Alternatively, GEARS could establish our own collection box and periodically deliver the accumulated eyeglasses to a local Lions Club as one of our community service programs.

Date	Time	Event	Location	Contact party
Sunday, August 7 October 2	2:00 p.m.	VEC—Exams	Butte Co. Search & Rescue Building 2591 Morrow Lane, Chico	Tom Rider 530-893-9211
Thursday July 14	4:30 p.m. Board and General Meeting .	GARS-Glenn Glenn Amateur Radio Society General Meeting, & Amateur Radio Emergency Services	Lutheran Church Hall: 565 Main Street Artois	Albert Leyva 530-567-5979
Friday, July 8, 2016		OARS Oroville Amateur Radio Society General Meeting	St Paul's Church Parrish Hall 1430 Pine Street Oroville	Ron Osborne-kd7uhf 530 589 1834 kd7uhf@yahoo.com
Saturday July 9, 2016	Board meet: 9:00 a.m.	GEARS Board of Directors Meet Members are Invited!	Blood Source Blood Source Bldg 555 Rio Lindo Ave	Larry Marcum, KA6GND 530 345 5399 ka6gnd@gmail.com
Friday July 15m 2016	General Meeting Social 6:30 p.m. Program: At 7:00 General meeting 8:00 p.m.	GEARS Golden Empire Amateur Radio Society	Butte County Search and Rescue Building 2591 Morrow Lane Chico	Larry Marcum, KA6GND 530 345 5399 ka6gnd@gmail.com
	GEARS IS NOW ON FACEBOOK!			

Donations to GEARS are TAX DEDUCTIBLE

We are a 501 c 3 organization, and as such, donations cash, or materials, donated to GEARS are Tax deductible. When you donate to GEARS, be sure you receive a letter of acknowledgment from our Secretary as proof of the donation and its value for the State and Federal Tax Authorities. This is a win-win for GEARS and for you, the member or the party donating!

Free of charge to ARRL members...[Subscribe](#) to the *ARES E-Letter* (monthly public service and emergency communications news), the *ARRL Contest Update* (bi-weekly contest newsletter), Division and Section news alerts -- and much more! And did you know: You may Find ARRL on [Facebook!](#) Or Follow ARRL on [Twitter!](#)